



URBAN GREEN LAB™

We teach communities how to live sustainably.

SUSTAINABLE CLASSROOMS HOME INVESTIGATIONS

Printing sponsored by:

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Home Investigation 1: Energy Waste

Every day we use electricity to cook, stay warm, and get around. Electricity comes from many sources of energy that use resources from the Earth like coal or wind. If we use less electricity at home we can help protect the planet and save money. Let's investigate how you and your family use and save energy.

1. Renewable Energy:

Solar panels are a common way to use renewable energy at home.

Does your home have solar panels? (Circle) Yes / No

2. Light Bulbs:

Count the number of light bulbs in the rooms described below and enter them in the chart. Be sure to count them all! Use the images of the light bulbs to help you identify the different types of bulbs.

				
Room	# of Incandescent Bulbs	# of Compact Fluorescent Light (CFL) Bulbs	# of Light Emitting Diode (LED) Bulbs	# I am not sure Light Bulbs
Kitchen	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
One Bathroom	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Your Bedroom	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Totals	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Tip! If you replaced just 10 incandescent bulbs with LED bulbs, your family could save \$60 in one year. Be sure to turn off all lights when you leave the room.

3. Temperature:

Investigate the temperature setting on your air conditioner (AC) and heater.

Is the air conditioner on? (Circle) Yes / No

Is the heater on? (Circle) Yes / No

Current Temperature Setting:	<input type="text"/>
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Current Temperature Setting:	<input type="text"/>
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Tip! It is best to set the air conditioner to 78 degrees in the summer and set the heater to 65 degrees in the winter. How close are you to these numbers?

4. Appliances & Electronics:

Everything that plugs into the wall uses electricity like a lamp, toaster, and television. Let's investigate three rooms to see where you are using electricity and if it is on or off.

Room	# Electronics Plugged In	# Electronics That Are Turned On
Bedroom	<input type="text"/>	<input type="text"/>
Kitchen	<input type="text"/>	<input type="text"/>
Other Room	<input type="text"/>	<input type="text"/>
Totals	<input type="text"/>	<input type="text"/>

Tip! Unplug appliances like the TV and toaster when you're not using them. This will reduce the phantom load and save energy and money!



Home Investigation 2: Water Waste

We use water every day to drink, cook, clean, and so much more. Out of all of the water on Earth, we can only use 1 percent so it is very limited. Cleaning water uses a lot of energy, but we can do our part by using less water at home and at school. Let's investigate your own home to learn how you and your family use and save water.

1. Personal Water Use

Record how much water you use today. This is your best guess. Enter how many times you do the activities. Then you can see how many gallons of water you used in one day.

Record and observe your own water usage:

Month:	Week:	Day:	
Activity	# of times	Gallons of Water used	Total Gallons
Drinking Fountain		0.25	
Flushing Toilet		5	
Brushing Teeth		3	
Washing Hands		3	
Load of Laundry		40	
Shower		9	
Bath		40	

Tip! Save water by turning off the water when brushing your teeth and making sure the faucet does not leak or drip. You can save more than 5 gallons every day!

2. Look Outside

When it rains, water runs off of the roof of our home and into the yard or street. We can use that water instead, with a rain barrel or by planting trees to soak it up. Look around the outside of your home to investigate where the rainwater goes.

1. Do you have a rain barrel that attaches to the side of your home? (Circle) Yes / No

2. Do you have a driveway or a patio? (Circle) Yes / No

Rainwater runs off of most paved surfaces such as driveways and patios into the stormwater system. Grass soaks in rainwater and cleans the water naturally instead, saving energy.

3. If your home or apartment complex has a yard, how many total trees are in the front and/or backyard? _____

Trees have larger roots than grass and can soak up a lot of rainwater, saving it from going into the stormwater system.

4. Does your family water the yard? (Circle) Often / Sometimes / Never

Watering the yard too much wastes clean water that was treated for us to drink. Rainwater can be captured in rain barrels to water the yard later.



Home Investigation 3: Food Waste

We can reduce food waste from the very beginning—where we buy our food! Buying food that has less packaging and only buying the foods we will use before they go bad can help reduce waste.

1. Grocery Shopping

1. Where does your family get food during the week? Mark on the chart below and read the tips for reducing waste.

Source of Food	Yes or No	Tips
Grocery Store	<input type="checkbox"/>	Shop the outside aisles of the grocery store for the freshest foods that usually have less packaging.
Farmers Market	<input type="checkbox"/>	If you visit, ask a farmer what fruits and vegetables are in season and growing in Tennessee right now.
Restaurant/ Fast Food	<input type="checkbox"/>	Try not to order more than you will eat. Leftovers are one of the biggest sources of food waste at home.
Home Garden	<input type="checkbox"/>	Gardens provide fresh food without any packaging. Any extra food can be donated or preserved by freezing or canning them.
Gas Station or Convenience Store	<input type="checkbox"/>	Think about how you can recycle the packaging of whatever you buy.

2. Composting

Composting is nature's way of recycling food and yard waste. It is a natural process that happens when **organic materials** decompose and return to the soil. By composting at home, you help keep food waste out of landfills where they take up space and release methane, a greenhouse gas.

1. Does your family compost food scraps? (Circle one)

- A Yes, we compost every day.
- B Yes, we compost sometimes.
- C No, we aren't composting right now.
- D I'm not sure if we compost.

2. Does your family ever donate canned or packaged food that you're not going to eat—before the expiration date? Circle one.

- A Yes, we donate canned and packaged food all the time.
- B Yes, we donate canned and packaged food sometimes.
- C No, we aren't donating canned or packaged food right now.
- D I'm not sure if we donate canned and packaged food.

Tip! Donating canned or packaged food can help reduce food waste because someone else can eat it before it goes bad.

3. Investigating Your Kitchen

Today, pay attention to the food that is wasted every time you eat. Fill out the chart below by marking which meal it was, if there was any food thrown away, how much, and if the waste was composted.

	Meal: Breakfast, Lunch, Dinner, Snack	Was there any waste?	Would the amount of waste fit into one cup?	Was the waste composted?
Example:	Breakfast	Yes	Yes	No
	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>



Home Investigation 4: Solid Waste & Litter

1. In Your Home

Solid Waste is trash, garbage, or anything else you throw away to keep your home safe and clean like papers, empty containers, or broken toys. If we don't recycle or reuse solid waste, it can become litter or is buried in a landfill. Let's learn how to reduce our solid waste by reducing, reusing, and recycling some of these materials!

1. Does your home have any of the following bins or boxes?

Type of Bin	Yes or No
Trash	
Recycling	
Compost	

2. Go look in the trash can in your kitchen or outside in the trash bin. Look at just the top, or ask your parents if you can dig through the bin to investigate.

- A. How many items in the trash can be recycled like plastic bottles, metal, cans or paper? _____
- B. How many items in the trash can be composted like food or paper towels? _____
- C. What is one item you found that can be reused instead of thrown in a landfill? _____
- D. Describe what it is and how it could be reused? _____
- E. What is one item that you found that could be reduced by using less of it so less solid waste will end up in the landfill? _____

2. Look Outside

Now let's look outside! Sometimes people don't put waste where it belongs—in a trash can or recycling bin—and it becomes litter. Litter is waste left in open spaces that can harm the environment and public health. It is important to do our part to keep the Earth clean.

1. Go outside and walk around your home. Walk 20 steps or more and count how many pieces of litter you find. Mark what you find in the chart below.

Litter Item	What is it made of?	Can it be recycled?	Should it be put in the trash?

Tip! If you don't know if something can be recycled you might find a sign on the recycling bin, you can look it up online, or ask a teacher.



Home Investigation 5: Transportation

We all need transportation to get from one place to another using cars, buses, trains, bicycles, or even our feet. All of these modes of transportation use energy sources like oil, electricity, or our own bodies. Most use fossil fuels that can pollute the air and harm ecosystems. To move our vehicles around, we also need to build roads, sidewalks, bridges, interstates, and bike lanes. All of these things are part of the built environment. Building them requires more energy and resources. We can help protect the Earth by using efficient transportation.

1. Your Transportation Habits

Carpooling means sharing a car with another family or friend. Carpooling is good for the environment because it means less fuel is used.

1. Have you ever carpoled with a friend or family member? Circle one. Yes / No

2. How many miles do you live away from school? (Ask an adult or use a map!) _____

3. Fill out the chart below:

Transportation	How many times do you use this transportation in 1 week?	Greenhouse Gas Emissions Per Person (CO2 pounds per mile)	Total Emissions (# of trips x Greenhouse Gas Emissions x miles)
Gasoline Car		1.1	
Hybrid Car		.55	
Carpool (3 people or more)		.37	
School/City Bus		.21	
Walking/Biking		.00	
Others			

4. If you do not walk or bike to school, consider why it is not the best choice for you right now. You can circle more than one.

A It takes me too long.

B It is not safe.

C The weather is crazy.

D Another reason: _____

Tip! Walking and biking produce zero emissions, which keeps the air clean and good for our health! If it is safe and an adult gives you permission, this is the most sustainable form of transportation.



Home Investigation 6: Air Quality

Indoor and outdoor air quality are important for our health and the health of the Earth. Using too much electricity, wasting water, and driving in cars can pollute the air around us. Sometimes things in our homes, like paint or air fresheners, can pollute the air too. We all have the power to improve the air quality around us!

1. The Air Outside

For the next three days, you will measure the air quality of your town using the Air Quality Index on this page. The Air Quality Index measures how clean or polluted the air is outside. The higher the number of the Air Quality Index, the greater the level of air pollution. More air pollution can be bad for your health.

If you can, use a computer or smartphone to visit <https://www.airnow.gov> and enter your zip code to see the Air Quality Index in your neighborhood. Ask a family member if you don't know your zip code.

1. Put a checkmark indicating the Air Quality Index for your zip code for the next three days.

Air Quality Index Level of Concern	Numerical Value	Day 1 Check One Box	Day 2 Check One Box	Day 3 Check One Box
Good	0-50	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate	51-100	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Unhealthy for Sensitive Group	101-150	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Unhealthy	151-200	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Very Unhealthy	201-250	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hazardous	251-300	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2. In general, was the air quality good, unhealthy, or hazardous on these three days?

2. The Air Inside

Investigate your home and record your observations below to determine how clean your indoor air quality is at home. Ask an adult if you need any help.

1. Some gases in your home are hard to see, but they can be monitored to be sure you are safe. Fill in the chart below to mark if your home has a detector for that gas?

Detector	Yes we have one	No we don't have one
Carbon Monoxide	<input type="checkbox"/>	<input type="checkbox"/>
Radon Detector	<input type="checkbox"/>	<input type="checkbox"/>
Smoke	<input type="checkbox"/>	<input type="checkbox"/>

2. Ask an adult to help you find the air filter that is used to help clean the air in our house. Circle if you do not have one, or if it is clean or dirty.

A I do not have one

B It looks clean

C It looks dirty